

REMARKS

By this amendment, Applicant has amended claim 1. Support for the amendments can be found in the Specification at, for example, page 8, line 13-page 9, line 1. Claims 1-3 and 5-17 remain pending, of which claims 1-3 and 5 are under consideration and claims 6-17 are withdrawn from consideration.

In the Final Office Action¹, the Examiner took the following actions:

- (1) rejected claims 1 and 2 under 35 U.S.C. § 102(b) as being anticipated by Hashimoto (U.S. Patent Application Publication No. 2002/0064795, "*Hashimoto*");
- (2) rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over *Hashimoto* in view of Sato et al. (U.S. Patent Application Publication No. 2002/0102718, "*Sato*"); and
- (3) rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over *Hashimoto* in view of Phan (U.S. Patent No. 5,434,423, "*Phan*").

For at least the follow reasons, Applicant respectfully traverses the rejections and requests reconsideration.

I. The rejection of claims 1 and 2 under 35 U.S.C. § 102(b)

Applicant respectfully traverses the rejection of claims 1 and 2 under 35 U.S.C. § 102(b) as being anticipated by *Hashimoto*.

In order to properly establish that *Hashimoto* anticipates claims 1 and 2 under 35 U.S.C. § 102, each and every element of each of the claims in issue must be found, either expressly described or under principles of inherency, in that single reference.

¹ The Final Office Action contains statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Final Office Action.

Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." See M.P.E.P. § 2131, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, (Fed. Cir. 1989).

Hashimoto fails to disclose each and every element of amended claim 1. For example, *Hashimoto* does not disclose an electrode apparatus comprising:

a first electrode structure comprising: a well formed on a substrate and having an opening area . . . a solid-phasing layer positioned under the well and on the first electrode, the solid-phasing layer comprising a **surface coating** for fixing a nucleotide chain, the surface coating being formed by a **surface treatment** on the solid-phasing layer; . . . and

an external electrode structure . . . comprising a semiconductor wafer formed at an end of the external electrode structure, the semiconductor wafer being a second electrode and having a **surface facing the well**, an area of the surface being **larger** than the opening area,

as recited in claim 1, as amended (emphasis added).

The Examiner asserted that the "ion transmission film is viewed as a solid phasing layer." Final Office Action at page 2. The assertion is not correct in view of the amendments to claim 1.

Hashimoto indeed discloses that an "ion transmission film in which an electron can move may be disposed between the bottomed vessel 1 and the counter electrode 3." *Hashimoto* at paragraph [0070]. However, *Hashimoto* does not disclose that the ion transmission film comprises a "**surface coating** for fixing a nucleotide chain," as recited in claim 1, as amended (emphasis added). Further, *Hashimoto* also fails to disclose that the ion transmission film is formed by a "**surface treatment** on the solid-phasing layer," as recited in claim 1, as amended (emphasis added).

Further, The Examiner asserted that electrode 2 of *Hashimoto* corresponds to the claimed "external electrode," and that "some area of the electrode 2 is greater than some area of the well opening." Final Office Action at page 2. This is not correct.

Hashimoto discloses that "an outer shape of the electrode [2] including a substrate portion is a columnar or cylindrical shape having a width not more than 6 mm and not less than 1 mm, so that the electrode [2] can be **inserted** into a commercially available micro titer plate having 24, 48, 96, 384, or 1536 holes." *Hashimoto* at paragraph [0046]. *Hashimoto* further discloses the bottom surface, **facing** the hole 1a, 1b, 1c, of electrode 2 has an area **smaller** than the area of the hole. See the top portion of Fig. 3 of *Hashimoto*. Therefore, *Hashimoto* does not disclose "an external electrode structure . . . comprising a semiconductor wafer formed at an end of the external electrode structure, the semiconductor wafer being a second electrode and having a **surface facing the well**, an area of the surface being **larger** than the opening area," as recited in claim 1, as amended (emphasis added).

Because *Hashimoto* fails to disclose each and every element of claim 1, *Hashimoto* cannot anticipate claim 1, and claim 1 is allowable. Claim 2 is also allowable at least due to its dependence from claim 1.

Accordingly, Applicant respectfully requests the Examiner to withdraw the rejection of claims 1 and 2 under § 102(b).

II. The rejection of claim 3 under 35 U.S.C. § 103(a)

Applicant respectfully traverses the rejection of claim 3 under 35 U.S.C. § 103(a) as being unpatentable over *Hashimoto* in view of *Sato*.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. M.P.E.P. § 2142, 8th Ed., 7 (July 2008). “A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention.” M.P.E.P. § 2145. Furthermore, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art” at the time the invention was made. M.P.E.P. § 2143.01(III), internal citation omitted. Moreover, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences *themselves* would have been obvious, but whether the claimed invention *as a whole* would have been obvious.” M.P.E.P. § 2141.02(I), internal citations omitted (emphasis in original).

“[T]he framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). ... The factual inquiries...[include determining the scope and content of the prior art and]...[a]scertaining the differences between the claimed invention and the prior art.” M.P.E.P. § 2141(II). “Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art.” M.P.E.P. § 2141(III). Here, no *prima facie* case of obviousness has been established, for at least the reason that the Final Office Action has failed to properly determine the scope and content of the prior art, and has failed to ascertain the differences between the prior art and the claimed combinations.

Claim 3 depends from and recites each and every element of claim 1. As discussed above, *Hashimoto* does not disclose or suggest an electrode apparatus comprising:

a first electrode structure comprising: a well formed on a substrate and having an opening area . . . a solid-phasing layer positioned under the well and on the first electrode, the solid-phasing layer comprising a **surface coating** for fixing a nucleotide chain, the surface coating being formed by a **surface treatment** on the solid-phasing layer; . . . and

an external electrode structure . . . comprising a semiconductor wafer formed at an end of the external electrode structure, the semiconductor wafer being a second electrode and having a **surface facing the well**, an area of the surface being **larger** than the opening area,

as recited in claim 1, and included in claim 3 (emphasis added).

Sato fails to cure the deficiencies of *Hashimoto*. The Examiner asserted that “Sato teaches a nucleic acid (DNA) detector capable of performing overall analysis on an unreacted sample (see abstract). The apparatus comprises both a DC and AC power source (see Fig. 1).” Final Office Action at page 3. Even assuming the Examiner’s characterization of *Sato* is correct, which Applicant does not concede, *Sato* still fails to disclose or suggest the above-quoted elements recited in claim 1 and included in claim 3.

In view of the above deficiencies, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and claim 3. Accordingly, no reason has been clearly articulated as to why claim 3 would have been obvious to one of ordinary skill in the art

in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for claim 3, and claim 3 is allowable.

Accordingly, Applicant respectfully requests the Examiner to withdraw the rejection of claim 3 under § 103(a).

III. The rejection of claim 5 under 35 U.S.C. § 103(a)

Applicant respectfully traverses the rejection of claim 5 under 35 U.S.C. § 103(a) as being unpatentable over *Hashimoto* in view of *Phan*.

Claim 5 depends from and recites each and every element of claim 1. As discussed above, *Hashimoto* does not disclose or suggest an electrode apparatus comprising:

a first electrode structure comprising: a well formed on a substrate and having an opening area . . . a solid-phasing layer positioned under the well and on the first electrode, the solid-phasing layer comprising a **surface coating** for fixing a nucleotide chain, the surface coating being formed by a **surface treatment** on the solid-phasing layer; . . . and

an external electrode structure . . . comprising a semiconductor wafer formed at an end of the external electrode structure, the semiconductor wafer being a second electrode and having a **surface facing the well**, an area of the surface being **larger** than the opening area,

as recited in claim 1, and included in claim 5 (emphasis added).

Phan fails to cure the deficiencies of *Hashimoto*. The Examiner asserted that “Phan teaches that it is well known that semiconductors are altered in electrical behavior by the introduction of dopants.” Final Office Action at page 5. Even assuming the Examiner’s characterization of *Phan* is correct, which Applicant does not concede,

Phan still fails to disclose or suggest the above-quoted elements recited in claim 1 and included in claim 5.

In view of the above deficiencies, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and claim 5. Accordingly, no reason has been clearly articulated as to why claim 5 would have been obvious to one of ordinary skill in the art in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for claim 5, and claim 5 is allowable.

Accordingly, Applicant respectfully requests the Examiner to withdraw the rejection of claim 5 under § 103(a).

Conclusion

In view of the foregoing remarks, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account no. 06-0916.

Respectfully submitted,

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